

SCIENTEK™ CART AND UTENSIL WASHER / CAGE AND RACK WASHER

Model #SW6000 Series



OPERATION AND MAINTENANCE MANUAL

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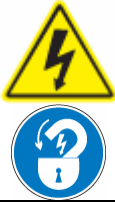



Section 1 Summary of Safety Warnings and Cautions

Following is a summary of the safety warnings and cautions which must be observed when operating or servicing this equipment. **WARNINGS** indicate **potential danger to personnel**, and **CAUTIONS** indicate **potential damage to equipment**. These precautions are repeated, where applicable, throughout the manual.

Observance of these safety precautions will minimize the risk of personal injury and/or the possibility of unit damage.

The operation and maintenance procedures recommended by Scientek™ are described in this manual. Only these recommended maintenance procedures should be followed.

	<p>WARNING: FALL HAZARD</p> <p>To prevent falls, keep floors dry. Promptly clean up any spills or drippage.</p>
	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
	<p>WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD</p> <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.

	<p>WARNING: ELECTRIC SHOCK HAZARD - Lock building electrical supply switch to OFF before performing any service on unit.</p>
	<p>WARNING: CHEMICAL BURN/EYE INJURY HAZARD</p> <ul style="list-style-type: none">• When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.• Always refer to the chemical's Material Safety Data Sheet. <p>Wear gloves and face protection</p>
	<p>WARNING: ELECTRIC SHOCK AND/OR BURN HAZARD</p> <ul style="list-style-type: none">• Lock building electrical supply disconnect switch to OFF, close steam, water and air supply valves, and position power switch to OFF before performing any service on the unit. When the power switch is ON, door switch(s) and valves are energized, and if cycle is started hot water/steam would enter piping and washer. <p>Wear gloves and face protection</p>
	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Allow unit to cool down before performing any service on pump, piping and valves. Motor, pump, valves and piping surfaces become very hot during unit operation <p>Wear gloves and face protection</p>



CAUTION: EQUIPMENT DAMAGE HAZARD

Be careful when choosing detergents for use with the washer. Detergents with a very high PH can be harmful to stainless steel.



CAUTION: EQUIPMENT DAMAGE HAZARD

For units equipped with Quicklock connectors and carts, ensure that the Quicklock cart connector flange is positioned correctly over the connection point in the washer before operation of the unit. If the cart is not positioned correctly, damage may result and unit will not effectively wash the load.



CAUTION: EQUIPMENT DAMAGE HAZARD

Use non-abrasive cleaners when cleaning the unit. Follow direction on containers and rub in back-and-forth motion (in same direction as surface grain). Abrasive cleaners will damage stainless steel. Cleaner rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use these cleaners on painted surfaces.



CAUTION: EQUIPMENT DAMAGE HAZARD



Solenoid valves are equipped with a special material which can be attacked by oils and grease. When replacing entire valve, wipe threads clean of cutting oils and use Teflon tape to seal pipe joints.

Section 2 General Information

The product literature included in this section contains factual data relating to the principal characteristics of the Scientek™ SW6000 Series of Cart and Utensil Washers / Cage and Rack Washers.

This literature is informative rather than instructional. It provides and conveys, through text and illustrations, a general concept of the equipment, its purpose, capabilities, limitations and technical specifications.

The Allen Bradley Panel View 600 is an operator interface with a color touch screen. It is programmed to display washer's status information and gives you full control over the washer. It facilitates easy access and adjustment of washer's operating parameters, full access to ten pre-programmed operating cycles and direct information feedback with Allen Bradley Micrologix 1500 series Programmable Logic Controller (P.L.C.)

 	<p>WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD</p> <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.
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Section 3 Principles of Operation

3.1 GENERAL

The Scientek™ SW6000 Series Cart & Utensil Washer / Cage and Rack Washer is equipped with an Allen Bradley Micro Logic 1500 Series programmable controller which operates all pre-programmed cycles. The cycle description and operation are described herein on the main control panel (soiled side, if two door pass through unit). The display is furnished with an Allen Bradley Panel View 600 color touch screen operator interface. The auxiliary control on clean side (if two-door pass through unit), is furnished with indicator cycle status lights and Start/Stop and Exhaust control switches.

3.2 CYCLE DESCRIPTION

3.2.1 Initial Start-Up


1. With the POWER switch in the OFF position, the power to the front (soiled end) control panel and, **if double door unit**, the rear (clean end) control panel of the unit is disconnected and the drain line valve is in the open position.
2. When the POWER switch is turned to the ON position, the front (soiled end) control panel is energized and, **if double door unit**, the rear (clean end) control panel is also energized. Door switch(s) on the front (soiled end) and, **if double door unit**, rear (clean end) of the unit are energized. The START, STOP and other switches are also energized.
3. If a door is open, then the **DOOR OPEN** indicator or light (red) will illuminate. If a **double door unit**, then opening either door will illuminate indicator and light on clean end of the machine.
4. If the STOP button (red two-stage) is in the locked position, then the **STOP** indicator will display. If a **double door unit, stop indicator light is installed**, on clean end.
5. The **CYCLE COMPLETE** indicator light (green) will illuminate for a **double door unit**, on clean end and main control will display message indicator.
6. The drain line valve will energize and close the drain line.
7. When the START button (green momentary) is pressed, the controller initiates the wash cycle.

3.2.1 Prewash


The Prewash step is designed to remove all of the loose soil from the items being washed. The steps occurring during this step are as follows:

- The **PREWASH** indicator light (amber) on clean end and message display on control panel is illuminated.

- The controller checks the state of the wash sump float switch. If it is in the closed (sump full) position, then the controller proceeds to the next step. If it is in the open (sump not full) position, then the fill solenoid is opened and fills the sump until the float switch closes at which time the fill solenoid is closed. On units equipped with the **heat exchanger option**, the water is preheated to 180° F (82° C) prior to entering the unit. On units equipped with the **cold water prewash option**, a separate fill solenoid, attached to a cold water line, is used to fill the unit. While the machine is filling, the **FILL** indicator message is displayed. When the fill solenoid closes, the **FILL** indicator display is extinguished.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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- The recirculation wash pump is activated and the prewash water is pumped through the piping, out the rotating arms and through the quicklock connection (if unit is so equipped) to the quicklock cart. The **prewash counter** is also activated and the pump remains energized until the counter times out. During the prewash, the Aqua-pulse control valves sequentially turn on and off the flow of circulating water to the left and right side spray arms, and (if so equipped) the quicklock connection.
- When the prewash counter has completed its time, the **drain delay counter** is initiated. During the drain delay, all the Aqua-pulse valves are left open and the water is allowed to flow out of the spray arms back to the sump. At the end of the drain delay, the Aqua-pulse valves are closed.
- When the drain delay counter has completed its time, the **power drain counter** is initiated. During the power drain, the drain line valve opens and the wash pump is energized. This forces the bulk of the water from the sump to the drain.

	<p>WARNING: FALL HAZARD</p> <p>To prevent falls, keep floors dry. Promptly clean up any spills or drippage.</p>
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- When the power drain counter has reached its limit, the **gravity drain counter** is initiated. During the gravity drain, the wash pump is deactivated, the drain valve remains open, and (in units so equipped) the gravity drain valve is opened. This allows any residual water in the sump, rotating spray arms and header to drain.
- When the gravity drain counter has reached its limit, the **flush drain counter** is initiated. During the flush drain, the drain line valve remains open and the fill solenoid is opened.

This flushes the sump and drain line, ensuring the complete removal of any remaining prewash residue.


- When the flush drain counter has completed its time, the drain valve closes and the fill solenoid remains open for the next step in the cycle.
- The **PREWASH** stage, which has remained displayed throughout this step, is now deactivated.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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3.2.2 Wash

The Wash step is designed to remove all of the soil from the items being washed. The steps occurring during this step are as follows:

- The **WASH** indicator message is displayed and the machine continues to fill from the end of the prewash flush drain.
- During the fill, the **DETERGENT** indicator message is displayed, activates the pump signal that energizes the **detergent pump**. When the detergent pump timer has reached its limit, the detergent pump is deactivated.

	<p>WARNING: CHEMICAL BURN/EYE INJURY HAZARD</p> <ul style="list-style-type: none">• When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.• Always refer to the chemical's Material Safety Data Sheet. <p>Wear gloves and face protection</p>
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- The float switch is monitored and when this switch closes, the fill solenoid valve is closed. On units equipped with the **heat exchanger option**, the water is preheated to 180° F (82° C) prior to entering the unit. While the machine is filling, the **FILL** indicator message is displayed. When the fill solenoid closes, the **FILL** display is extinguished.
- The recirculation wash pump is activated and the wash water is pumped through the piping, out the rotating spray arms and (if the machine is so equipped) through the quicklock connection to the quicklock cart. During the detergent wash, the Aqua-pulse

control valves sequentially turn on and off the flow of circulating water to the left and right side spray arms, and (if so equipped) the quicklock connection.

- If the washer is equipped with a detergent neutralization system, and the detergent wash timer has completed, the **detergent neutralizer pump timer** is initialized. This energizes the detergent neutralizer pump and the **NEUTRALIZER** indicator is displayed and dispenses neutralizer into the unit. The wash recirculation pump remains on during this time. When the detergent neutralizer pump timer has completed, the neutralizer pump is de-energized, the **NEUTRALIZER** display is deactivated and the **detergent neutralizer wash timer** is initialized. During this time, the wash recirculation pump and Aqua-pulse system is active in order to provide complete mixing of the neutralizer and detergent.
- When the detergent wash timer (or detergent neutralizer wash timer, if installed) has completed its time, the **drain delay timer** is initiated. During the drain delay, all the Aqua-pulse valves are left open and the water is allowed to flow out of the spray arms back to the sump. At the end of the drain delay, the Aqua-pulse valves are closed and the **power drain timer** is initiated. During the power drain, the drain line valve opens and the wash pump is energized. This forces the bulk of the wash water from the sump to the sewer.



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

- When the power drain timer has completed, the gravity drain timer is initiated. During the gravity drain, the wash pump is deactivated and the drain valve remains open. This allows any residual wash water in the sump, rotating arms and manifold to drain.
- When the gravity drain timer has completed its time, the **flush drain timer** is initiated. During the flush drain, the drain line valve remains open and the fill solenoid is opened. This flushes the sump and drain line, ensuring the complete removal of any remaining wash residue.
- When the flush drain timer has completed, the drain valve closes and the fill solenoid remains open for the next step in the cycle.

The **WASH** indicator display, which has remained illuminated throughout this section, is now deactivated.




WARNING: BURN HAZARD

- **Doors, washer interior and washed wares may be hot.**
- **Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door.**

Wear gloves and face protection.

3.2.3 Acid Wash (Optional)

- The **WASH** indicator message is displayed the machine continues to fill from the end of the prewash flush drain.
- During the fill, the **ACID** indicator message illuminates and the controller activates the acid pump signal that energizes the **acid pump timer** and pump. When the acid pump timer has completed, the acid pump is deactivated and the **ACID** display is deactivated.
- The controller monitors the float and when the float rises, the controller closes the fill solenoid. On units equipped with the **heat exchanger option**, the water is preheated to 180° F (82° C) prior to entering the unit. While the machine is filling, the **FILL** message indicator is displayed. When the fill solenoid closes, the **FILL** indicator message is extinguished.

	<p>WARNING: CHEMICAL BURN/EYE INJURY HAZARD</p> <ul style="list-style-type: none">• When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.• Always refer to the chemical's Material Safety Data Sheet. <p>Wear gloves and face protection</p>
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- The recirculation wash pump is activated and the wash water is pumped through the piping, out the rotating spray arms and through the quicklock connection to the removable header. The **acid wash timer** is also activated and the pump remains energized until the timer times out. This step removes all of the scale and similar soils from the items being washed.
- When the acid timer has completed, the **neutralizer pump timer** is initialized. This energizes the neutralizer pump and the **NEUTRALIZER** indicator is displayed and dispenses neutralizer into the unit. The wash recirculation pump remains on during this time. When the neutralizer pump timer has completed, the neutralizer pump is de-energized, the **NEUTRALIZER** display is deactivated and the **neutralizer wash timer** is initialized. During this time, the wash recirculation pump is active in order to provide complete mixing of the neutralizer and acid.
- When the neutralizer wash timer has completed its time, the **detergent pump timer** is initialized. The wash recirculation pump and Aqua-pulse system remains active. This energizes the detergent pump and the **DETERGENT** indicator is displayed and dispenses detergent into the unit. When the detergent pump timer has completed its time, the detergent pump is de-energized, the **DETERGENT** display is deactivated and the **detergent wash timer** is initialized. During the detergent wash, any remaining soils are removed. During the detergent wash, the Aqua-pulse control valves sequentially turn on and off the flow of circulating water to the left and right side spray arms, and (if so equipped) the quicklock connection.

- If the washer is equipped with a detergent neutralization system, and the detergent wash timer has completed, the **detergent neutralizer pump timer** is initialized. This energizes the detergent neutralizer pump and the **NEUTRALIZER** indicator is displayed and dispenses neutralizer into the unit. The wash recirculation pump remains on during this time. When the detergent neutralizer pump timer has completed, the neutralizer pump is de-energized, the **NEUTRALIZER** indicator display deactivated and the **detergent neutralizer wash timer** is initialized. During this time, the wash recirculation pump and Aqua-pulse system is active in order to provide complete mixing of the neutralizer and detergent.
- When the detergent wash timer (or detergent neutralizer wash timer, if installed) has completed, the **drain delay timer** is initiated. During the drain delay, all the Aqua-pulse valves are left open and the water is allowed to flow out of the spray arms back to the sump. At the end of the drain delay, the Aqua-pulse valves are closed.
- When the drain delay timer has completed, the **power drain timer** is initiated. During the power drain, the drain line valve opens and the wash pump is energized. This forces the bulk of the wash water from the sump to the drain.



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

- When the power drain timer has completed, the **gravity drain timer** is initiated. During the gravity drain, the wash pump is deactivated and the drain valve remains open. This allows any residual wash water in the sump, rotating arms and header to drain.
- When the gravity drain timer has completed, the **flush drain timer** is initiated. During the flush drain, the drain line valve remains open and the fill solenoid is opened. This flushes the sump and drain line, ensuring the complete removal of any remaining wash residue.
- When the flush drain timer has completed, the drain valve closes and the fill solenoid remains open for the next step in the cycle.
- The **WASH** indicator display, which has remained illuminated throughout this section, is now deactivated.



WARNING: BURN HAZARD

- **Doors, washer interior and washed wares may be hot.**
- **Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door.**

Wear gloves and face protection.

3.2.4 Rinse 1


- The **RINSE 1** indicator light display message on the control panel illuminates and the machine continues to fill from the end of the wash flush drain.
- The controller monitors the float and when the float rises, the controller closes the fill solenoid. On units equipped with the **heat exchanger option**, the water is preheated to 180° F (82° C) prior to entering the unit. While the machine is filling, the **FILL** message on the control panel also illuminates. When the fill solenoid closes, the **FILL** indicator message is extinguished.
- The recirculation wash pump is activated and the rinse water is pumped through the piping, out the rotating spray arms and through the quicklock connection to the removable header. The **rinse 1 timer** is also activated and the pump remains energized until the timer times out. This step provides thorough removal and rinsing of detergent wash water from the items being washed and the inside of the cabinet. During Rinse 1, the Aqua-pulse control valves sequentially turn on and off the flow of circulating water to the left and right side spray arms, and (if so equipped) the quicklock connection.
- When the rinse 1 timer has completed, the **drain delay timer** is initiated. During the drain delay, all the Aqua-pulse valves are left open and the water is allowed to flow out of the spray arms back to the sump. At the end of the drain delay, the Aqua-pulse valves are closed.
- When the drain delay timer has completed, the **power drain timer** is initiated. During the power drain, the drain line valve opens and the wash pump is energized. This forces the bulk of the wash water from the sump to the drain.



WARNING: FALL HAZARD


To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

- When the power drain timer has completed, the **gravity drain timer** is initiated. During the gravity drain, the wash pump is deactivated and the drain valve remains open. This allows any residual wash water in the sump, rotating spray arms and header to drain.
- When the gravity drain timer has completed, the **flush drain timer** is initiated. During the flush drain, the drain line valve remains open and the fill solenoid is opened. This flushes the sump and drain line, ensuring the complete removal of any remaining wash residue.
- When the flush drain timer has completed its time, the drain valve closes and the fill solenoid remains open for the next step in the cycle.
- The **RINSE 1** indicator message, which has remained illuminated throughout this section, is now deactivated.


	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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3.2.5 Rinse 2

- The **RINSE 2** indicator message display on control panel illuminates and the machine continues to fill from the end of the rinse 1 flush drain.
- The controller monitors the float and when the float rises, the controller closes the fill solenoid. On units equipped with the **heat exchanger option**, the water is preheated to 180° F (82° C) prior to entering the unit. While the machine is filling, the **FILL** indicator message control panel also illuminates. When the fill solenoid closes, the **FILL** message is extinguished.
- The recirculation wash pump is activated and the final rinse water is pumped through the piping, out the rotating arms and through the quicklock connection to the removable header. The **rinse 2 timer** is also activated and the pump remains energized until the timer times out. This step provides thorough final rinsing of the items being washed and the inside of the cabinet. During Rinse 2, the Aqua-pulse control valves sequentially turn on and off the flow of circulating water to the left and right side spray arms, and (if so equipped) the quicklock connection.
- When the rinse 2 timer has completed its time, the wash recirculation pump is deactivated and the controller verifies whether to hold or drain the final rinse water. If the controls have been set to retain the water, then the unit proceeds to the **exhaust step** of the program.
- If the controls have been set to drain the water, and the Rinse 2 timer has completed its time, the **drain delay timer** is initiated. During the drain delay, all the Aqua-pulse valves are left open and the water is allowed to flow out of the spray arms back to the sump. At the end of the drain delay, the Aqua-pulse valves are closed.
- When the drain delay timer has completed, then the **power drain timer** is initiated. During the power drain, the drain line valve opens and the wash pump is energized. This forces the bulk of the rinse water from the sump to the sewer.


	<p>WARNING: FALL HAZARD</p> <p>To prevent falls, keep floors dry. Promptly clean up any spills or drippage.</p>
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- When the power drain timer has completed, the **gravity drain timer** is initiated. During the gravity drain, the wash pump is deactivated and the drain valve remains open. This allows any residual wash water in the sump, rotating arms and header to drain to the sewer.
- When the gravity drain timer has completed, the drain line valve remains open and the unit proceeds to the next step.
- The **RINSE 2** indicator display message, which has remained illuminated throughout this section, is now deactivated.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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3.2.6 Exhaust

- The unit is equipped with an exhaust duct for direct venting via power operated damper to common house HVAC system, or via dedicated exhaust blower. In either case the P.L.C. provides a dedicated signal to vent machine for timed period. The message display will show exhaust time duration and will either command operation of damper or fan for given time. When the exhaust timer signal is deactivated, the exhaust display is extinguished.
- The **CYCLE END** indicator message is now activated and remains active until the unit is started again or the POWER is turned OFF. If the controls are set to drain the unit, then the drain line valve is open and the sump is empty. If the controls are set to retain the final rinse, then the drain line valve is closed and the sump is full.
- The unit can now be unloaded and is ready to start again.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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3.2.7 Cycle Interruption

- When the two stage STOP button (red) is pressed during a cycle, all electrical components shut off, stopping washer operation.
- If a door is opened during a cycle, the door switch is activated, all electrical components shut off and the washer stops.



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.



WARNING: BURN HAZARD

- **Doors, washer interior and washed wares may be hot.**
- **Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door.**

Wear gloves and face protection.

- The STOP button must be turned clockwise in order to release it. The unit will not start so long as the STOP button is pressed and locked.

When the START button (green) is pressed, the cycle resumes from where it left off.



WARNING: BURN HAZARD

- **Allow unit to cool down before performing any service on pump, piping and valves. Motor, pump, valves and piping surfaces become very hot during unit operation**

Wear gloves and face protection

Section 4 Description of Control Panel and Switches


4.1 POWER OFF/ON

Two position maintained - illuminated green “On”

Turns on the power to the washer controls (120 V). Initial start up procedure must be turned to “On” position green illuminated.

The Power switch can also be used to reset the machine to clear an alarm or reset cycle.

However care should be taken as when power is “Off” drain valves will open and water will be lost. Also neutralization will not take place with power “Off” as water is draining!

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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4.2 STOP


Red mushroom headed maintained two-position switch, must be out to “Run”. This is used as an emergency stop button or temporary "hold". It is two-stage button and must be turned clockwise in order to release it. When pressed, this button will stop the cycle and turn off the pump circulation tank sump heater and chemical injection system. When released, the sump heaters will be reactivated but the start button must be pressed to activate the pump circulation.

Note: there will often be two or more stop buttons located on the machine, so the correct button has to be released, possibly more than one was activated! Message display will show message: “Stop Button Pushed”, if one is still engaged. Upon release, display will show “Machine Ready, Push Start Button”.

4.3 SERVICE OFF/ON

Two position key operated switch give supervisor or maintenance personnel access to “Locked-out” features. “Off” position with key removed would be the normal operating condition for user. Key in and turned to “On” position unlocks access to touch screen buttons, “Set-up Menu” and “Service Menu”. With these two buttons you can proceed through screen menus to customize any parameters of cycle, or restrict access to certain cycles, and perform diagnostic functions of energizing devices through PLC inputs and outputs. For more information on these features refer to operator interface instructions, section “Set-up Menu” and “Service Menu”.

	WARNING: ELECTRIC SHOCK HAZARD - Lock building electrical supply switch to OFF before performing any service on unit.
	WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.
	WARNING: ELECTRIC SHOCK AND/OR BURN HAZARD <ul style="list-style-type: none">• Lock building electrical supply disconnect switch to OFF, close steam, water and air supply valves, and position power switch to OFF before performing any service on the unit. When the power switch in ON, door switch(s) and valves are energized, and if cycle is started hot water/steam would enter piping and washer. Wear gloves and face protection

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Allow unit to cool down before performing any service on pump, piping and valves. Motor, pump, valves and piping surfaces become very hot during unit operation <p>Wear gloves and face protection</p>
---	---

4.4 REAR (CLEAN-END) CONTROLS

For machines which are supplied in a two-door configuration, a small auxiliary control panel is installed on the clean-end of the machine. This control panel consists of the following indicators/switches:

- Cycle complete light – green illumination
- Door open light – red illumination
- Stop light – red illumination
- Run light – amber illumination
- Exhaust – amber illumination
- Stop switch – as described in 4.2
- Start switch – green momentary two-position push button switch, to re-energize machine after “Stop” or to initiate start of cycle.
- Exhaust switch – black momentary two-position push button switch, to initiate additional exhaust venting time prior to unloading machine. This is an additional exhaust time separate from normal time given at end of final rinse stage.

4.5 STRIP PRINTER

The strip printer is a panel mounted dot matrix printer. These printers record the activities and settings of the machine through the wash cycle. For additional information regarding the specific operation of the strip printer, refer to Appendix B.

4.6 PRELIMINARY PROCEDURE

1. Ensure that all of the services to the washer have been turned on (steam, water, air, etc.).
2. Open chamber door and check that large filters are installed and clean.
3. Check the rotating spray arms to ensure that they are free of debris.
4. Check the detergent supply to ensure that there is chemical present and verify that the pick-up tube is not clogged. **Note:** Always use a non-foaming detergent for effective cleaning and proper pump operation. Follow manufacturer's recommendations for amount of detergent to be used.



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.



WARNING: BURN HAZARD

- Doors, washer interior and washed wares may be hot.
- Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door.

Wear gloves and face protection.



WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD

- To avoid personal injury or equipment damage read and understand the manual.
- Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.
- Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.




WARNING: CHEMICAL BURN/EYE INJURY HAZARD

- When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.
- Always refer to the chemical's Material Safety Data Sheet.




Wear gloves and face protection

4.7 LOADING THE WASHER

1. Open door and roll filled rack or cart into washer. If a Quicklock cart is being used, ensure that the Quicklock flange on the cart fits snugly over the corresponding fitting mounted on the washer floor.

	<p>CAUTION: EQUIPMENT DAMAGE HAZARD</p> <p>For units equipped with Quicklock connectors and carts, ensure that the Quicklock cart connector flange is positioned correctly over the connection point in the washer before operation of the unit. If the cart is not positioned correctly, damage may result and unit will not effectively wash the load.</p>
---	--

2. Close door such that latch is fully engaged. The machine may not operate unless latch is fully engaged.
3. Turn the POWER switch to the ON position. If the **DOOR OPEN** indicator display or light is illuminated, ensure that the doors are properly closed.
4. If the **STOP** indicator is displayed or light is illuminated, turn the STOP button in a clockwise direction to release it.
5. Select the desired type of cycle using the touch pad cycle selection key (see next section).
6. Press the START button.

  	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
--	---

7. Washer operation can be halted at any time by pressing the STOP button. To resume cycle, press START. **DO NOT OPEN DOOR WITHOUT FIRST PRESSING THE STOP BUTTON.** If the door is opened without first pressing the STOP button, close the door securely and press the START button to resume the cycle.
8. The cycle will proceed as outlined in *Section 3: Principles of Operation*.

4.8 SHUTDOWN PROCEDURES

1. Turn the POWER switch to the OFF position.
2. Close all of the supply valves for the unit.
3. Position the building electrical supply switch (circuit breaker) to the OFF position.

Clean the unit as described in *Section 10, Inspection and Maintenance*.



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

Section 5 Panel View Touch Screen Control

5.1 MAIN MENU SCREEN

The MAIN MENU screen displays general information about the washer including system date and time.

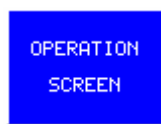
The navigation button is provided to access the Operation Screen.

The key-lock switch must be on to allow access to the setup and service menus.

Alarm list can also be accessed from the Main Menu.



Figure 1 – MAIN MENU Screen



Access to Operation Screen



or




Access to Set-Up Menu (Disabled / Allowed)



or



Access to Service Menu (Disabled / Allowed)

Note that the  sign denotes that the key switch needs to be in the ON position in order to access the respective feature !!



or



Access to Alarm List (no active alarms/some alarms present)

5.2 OPERATION SCREEN

The Operation Screen provides all information and controls needed to operate the washer.

On the bottom of the screen there are four control buttons: Start, Stop/Cycle Reset, Exhaust and Quick-Lock.

On the right side of the screen there are three navigation buttons to the Main Menu, Cycle Selection screen and the Alarm List screen.

Depending on the status of the washer operation, the control and navigation button may change the color and the title, as described below.

The top and central area of the screen provide the status information of the washer.

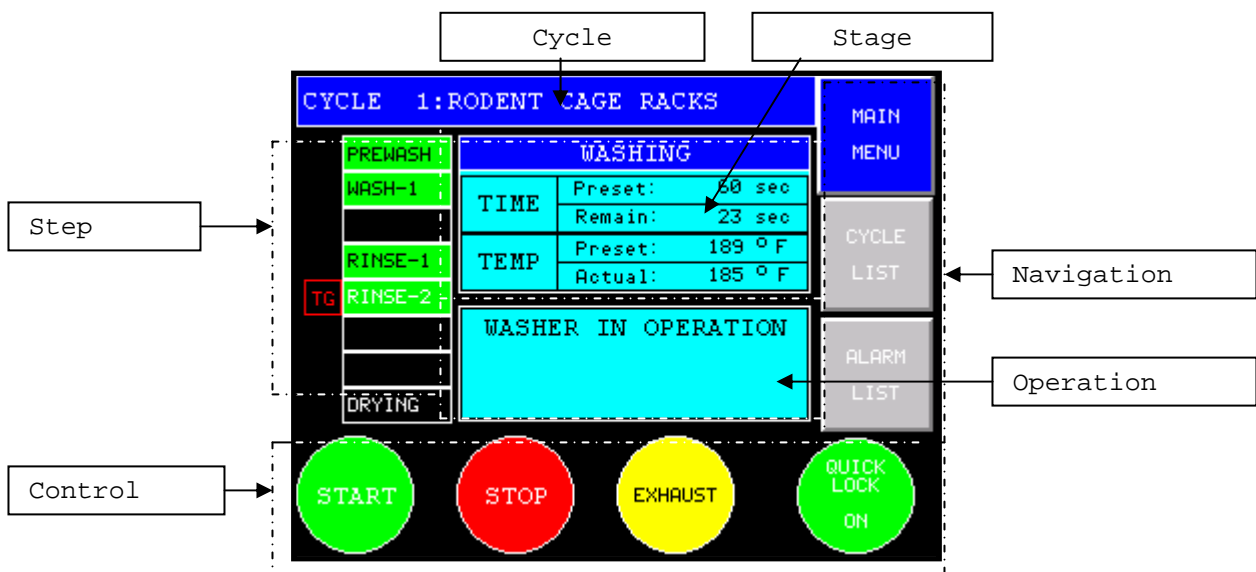


Figure 2 – OPERATION Screen

5.2.1 Control Buttons:

Start PB



The Start PB is used to start / restart the washer operation.

Stop / Cycle Reset PB



The Stop / Cycle Reset PB is used to interrupt any ongoing operation.



When the Stop button is pressed during the cycle operation it's label will change. By pressing it again and holding it pressed for approx. 3 sec it will reset the whole cycle.

Exhaust PB



This button can be used at the end of a wash cycle to initiate extra exhaust or during a wash cycle after the Stop button stopped the cycle.

Quick Lock Valve On/Off PB



Depending on how a cycle was setup, this button appears on the screen as either Q-Lock ON or Q-Lock OFF.

The button allows the selection to be changed for a specific cycle.

5.2.2 Navigation Buttons

Cycle Select PB

This PB brings up the list of the available cycles, where the operator selects the one that suits the need. Blue button prompts that the selection is possible, while the gray button allows access to the list and review of the cycles, but changing the selection is not possible at that stage.



In IDLE state operator is allowed to change the cycle selection.



The cycle list can be accessed and reviewed but the cycle selection can not be changed at that stage.

Main Menu Screen PB



This button will bring up the Main Menu Screen

Alarm List PB

This button brings up the alarm list. Gray button indicates that there are no active and un-acknowledged alarms, the blinking red button indicates that there are either active or un-acknowledged alarms.



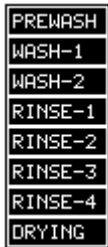
5.2.3 Status Indication:

Cycle Indicator: **CYCLE 1:RODENT CAGE RACKS**

The Cycle Indicator shows the cycle that has been selected or currently running.

Step Indicator:

The Step indicator graphically presents progress of the cycle execution and the result for each step.



Before any cycle is started the indicator will show all steps in black/white.



When the cycle has been started the steps that have time set to zero will be blanked out, and the step that is being executed will flash green with white letters.



As the cycle execution progresses the completed steps' indication will become steady green with black letters. The **TG** marks that the respective step has the temperature guarantee set. If the temperature guarantee set point has not been attained within the specified time the step indication will become flashing red.

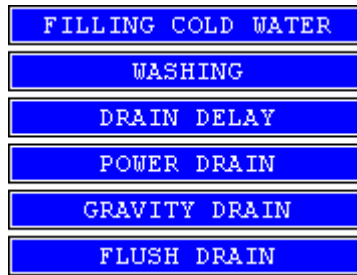
(**TG RINSE-3**)

Stage Indicator:

WASHING	
TIME	Preset: 180 sec
	Remain: 69 sec
TEMP	Preset: 160 °F
	Actual: 160 °F

The Stage Indicator provides information regarding the step currently being executed. It shows what is the current action, the preset and remaining time for that action and the preset and current temperature reading for the step in progress.

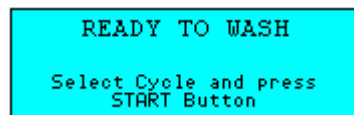
The information on the stage indicator changes as the operation advances through the respective step.



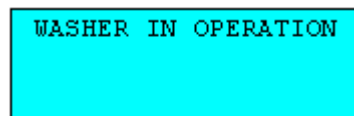
This is a sample of a sequence of information for the Prewash step:

Operation Messages:

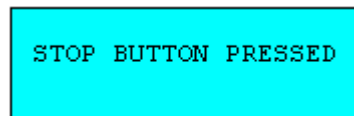
The message window is provided to display the information regarding the washer's operation, the operation conditions of the control devices and the actions required by the operator.



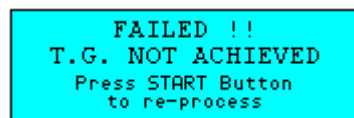
Washer is ready for operation, the operator is prompted to select a cycle and press the start button to initiate washing.



Washer is in operation.

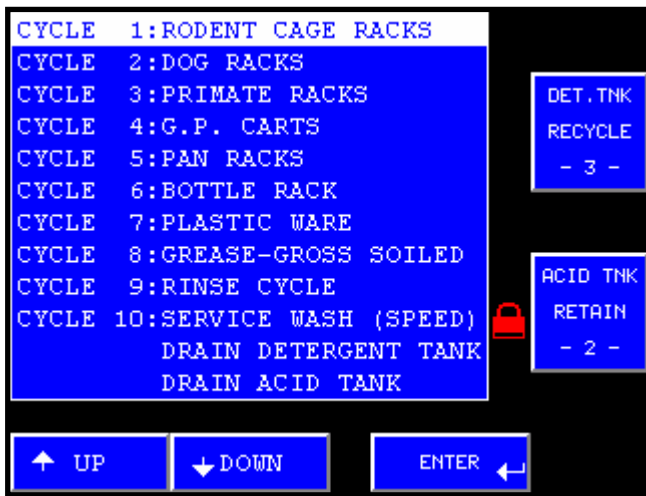


The emergency stop button is pressed.



The temperature guarantee had not been achieved. Operator should press the start button to re-process the load.

5.2.4 Cycle Selection:



To select a cycle use 'UP' or 'DOWN' button to highlight the desired cycle and press the "ENTER" button. The screen will change back to the operation screen.

The "lock" icon indicates that the particular cycle has been locked out by supervisor and can not be selected for the operation (see section 7.4 for setting the 'lock').



If the cycle selection screen is accessed in the situation when the cycle selection is not allowed (washer in operation) the ENTER button will change to a gray EXIT button.

DETERGENT & ACID RECIRCULATION TANKS (Optional):



Detergent tank RECYCLE/DRAIN button is used to select to weather to recycle or to drain the detergent solution after being used in the selected cycle. The selection will default to RECYCLE after the draining is finished. The number on the button indicates how many times the detergent tank solution has been used since last draining.

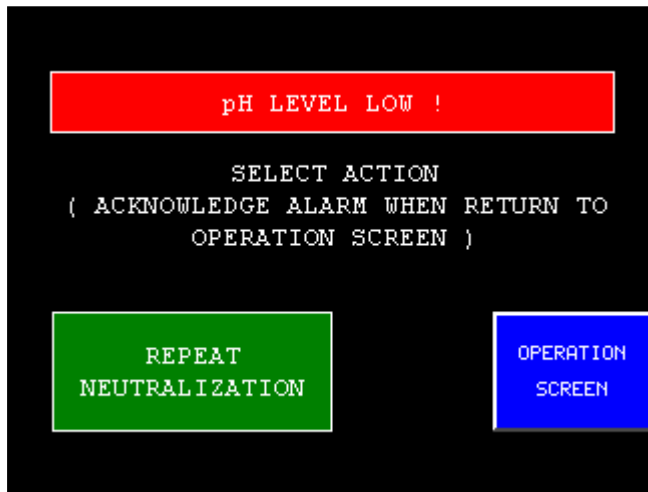


Acid tank RECYCLE/DRAIN button is used to select to weather to recycle or to drain the acid solution after being used in the selected cycle. The selection will default to RECYCLE after the draining is finished. The number on the button indicates how many times the detergent tank solution has been used since last draining.

The DRAIN DETERGENT TANK and the DRAIN ACID TANK programs are designed to initiate the complete draining of the respective solution tank at any time. The draining process is time based (time adjustment provided in COMMON SETTINGS-2 section).

5.2.5 pH Alarm Screen:

(Optional, only if pH control system is installed)



After the Wash-1 and Wash-2 stages, prior to draining, the system will check the pH level, based on the LOW alarm and HIGH alarm signal from the pH controller. If either alarm signal is present the system will initiate the neutralization process.

If the HIGH pH alarm signal is present, the system will engage the Neut-1 pump, and if the LOW pH alarm signal is present, the system will engage the Acd Neut pump.

If the pH level can not be corrected in specified time period (see section 7.11) an alarm will be generated and this screen will be shown. The operator has option to repeat the neutralization stage or to proceed with the drain stage. A message 'DRAIN .. pH LOW – MANUAL OVERRIDE' will be printed.

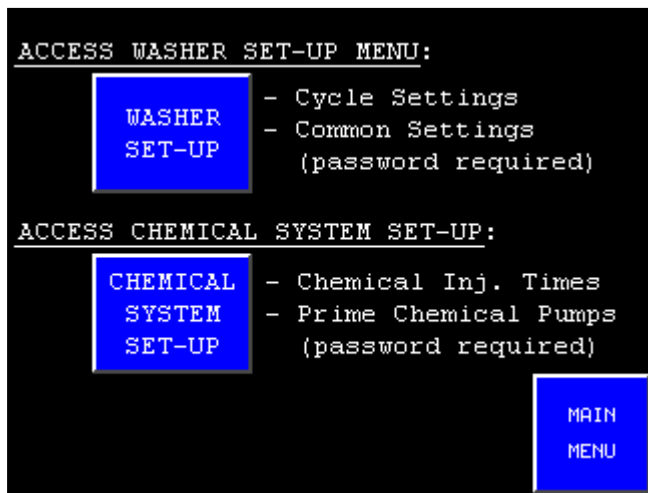
Pressing the button will toggle the selection between 'REPEAT NEUTRALIZATION' and 'DRAIN (ignore pH)'.

After selection is made return to the operation screen, acknowledge the alarm and press the Start pb to activate selected procedure.

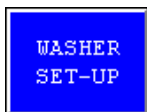
5.3 SET-UP MENU

The Set-up menu is accessed from the Main menu screen by pressing the SET-UP MENU button. The Service switch must be in the ON position to enable this button.

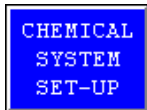
The following screen will be displayed:



Two options are given:



- access to all washer settings (cycle settings and common settings)
- valid password is required



- access to chemical injection times and priming the chemical pumps (set for the chemical contractor who needs no access to other washer settings)

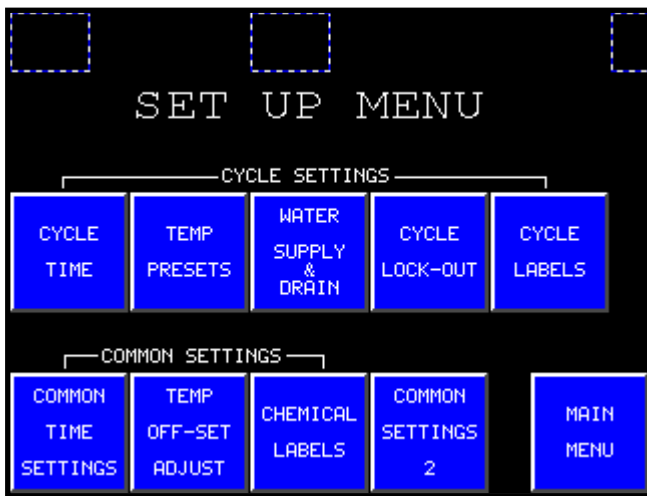
Password codes are required to access any selection from above. The list with password codes is supplied separately from this document.

Access to the WASHER SET-UP is allowed (with valid password) to the following users:
Supervisor, Foreman and Service

Access to the CHEMICAL SET-UP SYSTEM is primarily created for the chemical contractor to adjust the chemical injection times and prime the chemical pumps as needed. There is a separate user Chemical created with access code that will allow access only to these settings.

Note: All other users will also have access to the CHEMICAL SET-UP SYSTEM.

5.3.1 Washer Set-up Menu



This screen is a menu screen leading to other set-up screens.

Access is provided to the Cycle settings, those relevant to a particular cycle, and to the Common settings which are relevant to some general features and the to the washer's operation in general, not specific to any cycle.

Access to the control system configuration settings (date / time, communication parameters, etc.) is provided on this screen as a hidden button. Press momentarily at the top right hand corner of the screen, a numeric keypad will pop up. Enter the password and the system configuration screen will be shown.

See the Panel View manufacturer's manual (chapter 3.) for explanation of the system menu. The system menu has some vital parameters. Only experienced personnel should use the menu.

5.3.1.1 Cycle Time Settings:

CYCLE 1: RODENT CAGE RACKS	
TIME SETTINGS (sec)	
PREWASH	60
DETERG. INJ.	15
WASH-1	180
DETERG. SOAK	0
NEUT-1 INJ.	0
NEUT-1 CIRC.	0
ACID INJ.	15
WASH-2	60
ACID SOAK	0

DOWN ↓	UP ↑	CHANGE VALUE ####	ACCEPT NEW VALUE	CANCEL
-----------	---------	-------------------------	------------------------	--------

NEXT CYCLE ←
AQUA PULSE & FLOOR TILT
EXIT

Select a cycle for which you want to change time parameter(s), using the “NEXT CYCLE” button.

Use “UP” or ”DOWN” button to highlight the item you want to change and press the “CHANGE VALUE” button. This will bring a numeric keypad to the screen, where you can enter a new value for the item.

After you have changed all desired parameters for a particular cycle press “ACCEPT” button accepting the changes or “CANCEL” button canceling the changes.

Use the “AQUA PULSE & FLOOR TILT” button to access adjustment screen for aqua pulse spray pattern and the floor tilt (if installed). See section 7.1.9 for details.

Select next cycle you want to modify or press “EXIT” button to go back to the Set-up menu screen.

5.3.1.2 Cycle Temperature Settings:

CYCLE 1: RODENT CAGE RACKS				
TEMP. SP: F	SUMP HEAT	GUARANTEE		
PREWASH	140	32	<div>NEXT CYCLE ←</div> <div>EXIT</div>	
WASH-1	140	32		
WASH-2	140	32		
RINSE-1	160	32		
RINSE-2	189	182		
RINSE-3	32	32		
RINSE-4	32	32		
DRYING	32	32		
DOWN ↓	NEW VALUE ###	NEW VALUE ###	ACCEPT NEW VALUE	CANCEL

Select a cycle for which you want to change temperature parameter(s), using the “NEXT CYCLE” button.

Use “UP” or ”DOWN” button to highlight the item you want to change and press the “NEW VALUE” button either for the Sump heat or the Guarantee temperature. This will bring a numeric keypad to the screen, where you can enter a new value for the item.

Note: The guarantee set-point can not exceed the sump heating set-point.

After you have changed all desired parameters for a particular cycle, press “ACCEPT” button accepting the changes or “CANCEL” button canceling the changes.

Select next cycle you want to modify or press “EXIT” button to go back to the Set-up menu screen.

5.3.1.4 Cycle Lockout

CYCLE 1:RODENT CAGE RACKS	ENABLED
CYCLE 2:DOG RACKS	ENABLED
CYCLE 3:PRIMATE RACKS	ENABLED
CYCLE 4:G.P. CARTS	ENABLED
CYCLE 5:PAN RACKS	ENABLED
CYCLE 6:BOTTLE RACK	ENABLED
CYCLE 7:PLASTIC WARE	ENABLED
CYCLE 8:GREASE-GROSS SOILED	ENABLED
CYCLE 9:RINSE CYCLE	ENABLED
CYCLE 10:SERVICE WASH (SPEED)	DISABLED
UP	DOWN
SELECT	EXIT

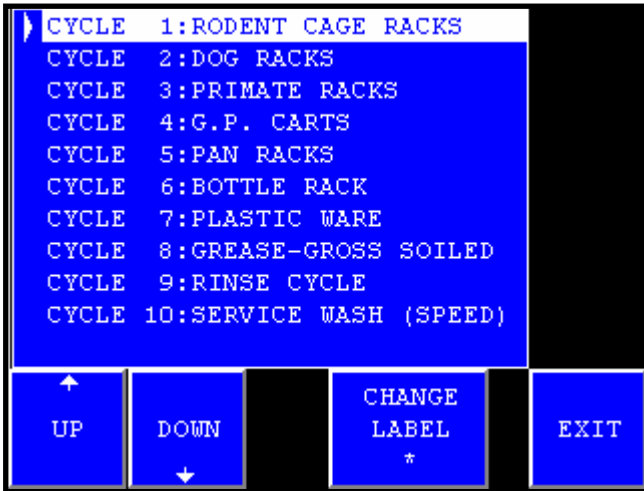
Any wash cycle can be locked out, so that the cycle cannot be selected for operation.

Use "UP" or "DOWN" button to highlight the cycle you want to disable (lock out) or enable. Pressing the "SELECT" button will toggle between ENABLED/DISABLED.

5.3.1.5 Cycle Description

Each cycle can have the label (description) changed so it is more descriptive in regard to the type of the load being processed or the chemical being used to treat the load or whatever makes sense to the operation personnel.

The label can be long 20 characters maximum.



Use the “UP” or ”DOWN” button to highlight the cycle whose label will be changed. Press “CHANGE LABEL” button to bring up an alphanumeric and enter desired description.

See Appendix B of this manual or PV600 manual, page 5-11 for instructions of how to use the keypad.

Press “EXIT” button to go back to the Set-up menu screen.

5.3.1.7 Temperature Reading Off-set Adjustment

TEMPERATURE OFF-SET ADJUSTMENT			
° F	RAW READING	OFF-SET	ADJUSTED
SUMP WASH PROBE	65	0	65
DRYER PROBE	--	0	--
BOOSTER PROBE	67	0	67
not used	--	0	--
DETERGENT TANK	120	0	120

DOWN
↓

ADJUST
OFF-SET
###

EXIT

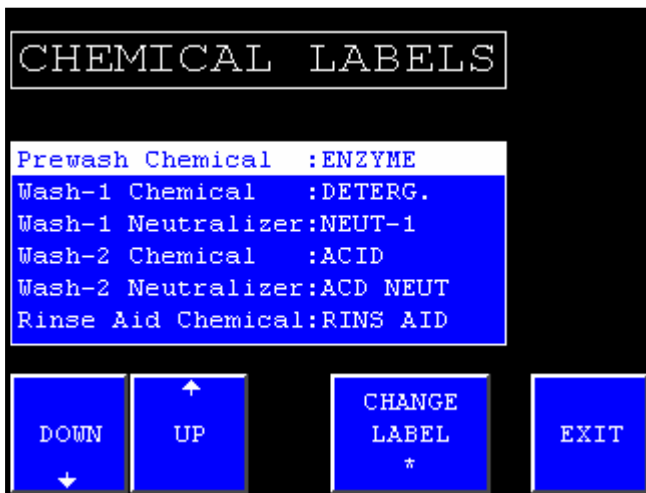
This screen is provided for calibration of temperature measurements by the individual probes.

Use "DOWN" button to highlight the item where you want to change the offset value and press the "ADJUST OFF-SET" button. This will bring up a numeric keypad where you can enter a new value.

The Actual temperature is the reading value plus the offset value.

Press "EXIT" button to go back to the Set-up menu screen.

5.3.1.8 Chemical Description



This screen allows you to customize chemical label descriptions.

System provides up to eight characters for each label.

Use "UP" or "DOWN" button to highlight a label whose description you want to change. Press "CHANGE LABEL" button to bring up an ASCII keyboard where you can enter a new label description.

Press "EXIT" button to go back to the Set-up menu screen.

5.3.1.9 Aqua Pulsing (Spraying Patterns)

CYCLE 1:RODENT CAGE RACKS		NEXT CYCLE ←	
Press to change spray pattern selection:			
PULSING: RH <-> LH		RETURN	
TIME SETTINGS (sec)			
RH VALVE	10	EXIT	
LH VALVE	10		
Q-LOCK VALVE	10		
DOWN ↓	UP ↑	CHANGE VALUE ####	ACCEPT NEW VALUE
		CANCEL	

Select a cycle for which you want to select a new spraying pattern, using the “NEXT CYCLE” button.

To select a spraying pattern for the cycle press the button with the spraying pattern description inside. Press repeatedly until the desired spraying pattern appears on the button.

Once you have selected the spraying pattern you may want to setup times for individual valves.

Use “UP” or ”DOWN” button to highlight the valve whose time on you want to change. Press “CHANGE VALUE” button to bring up a numeric keyboard where you can enter a new value.

After you have changed valve-time-on values for a particular cycle press “ACCEPT” button to accept the changes or “CANCEL” button to cancel the changes.

Press “RETURN” button to go back to the Cycle Time menu screen.

Press “EXIT” button to go back to the Set-up menu screen.

5.3.1.10 System Date/Time Adjustment

On the Set-Up Menu screen press in the right hand top corner. The numeric keypad will show up, enter the password. The system Configuration Mode screen will be shown.

Please refer to Appendix B or the PV600 User Manual, page 3-28 for instructions on how to change the system date and time.

Note: This procedure must be carried out by a qualified person, since any mistakes while accessing the control system set-up parameters may render the control system inoperable.

5.3.1.11 Miscellaneous Settings:

SUMP LOW LEVEL ALARM DELAY	60 s
SPRAY VALVES' OVERLAP TIME	1 s
SUMP HEAT DEAD BAND	4 F
BOOSTER HEATER DEAD BAND	10 F
MAX TEMPERATURE S.P.	190 F
POWER DRAIN MODE [0,1,2]	0
CONDUCT. & pH - INJECTION	5 s
CONDUCT. & pH - MIXING/CHECK	5 s
pH CONTROL - ALARM DELAY	120 s
CONDUCT. CTRL - ALARM DELAY	120 s

UP

DOWN

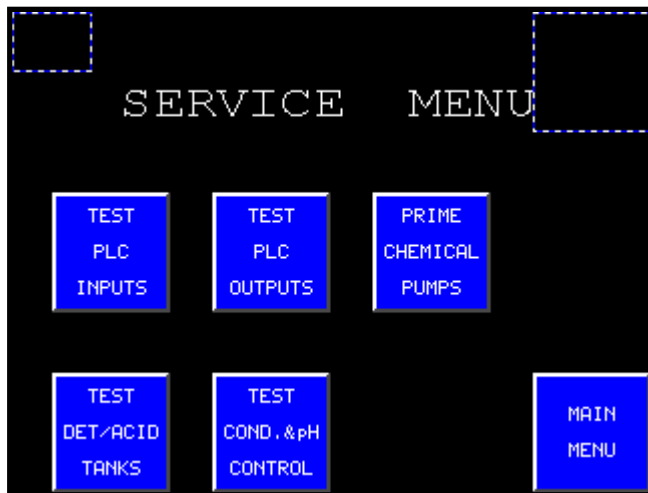
CHANGE
VALUE
####

EXIT

Access to this screen is provided by a hidden button on the Set-up Menu Screen, above the 'UP' word.

The parameters in this section are factory set and normally do not require site adjustment.

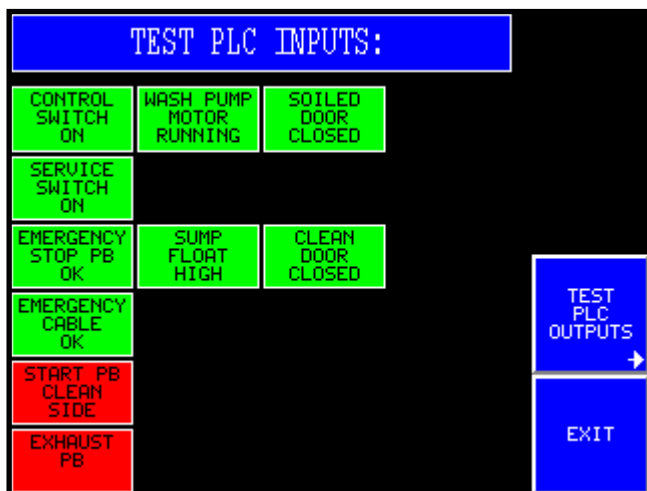
5.4 SERVICE MENU



The service mode is provided to enable testing and troubleshooting the control devices on the washer, i.e. the sensors, push buttons, control valves, pumps' motors, and chemical pumps. The devices are divided in the following groups: the PLC input signals, the PLC output signals, the chemical pumps system comprising of the chemical level sensors and the chemical pumps (or signals to the chemical injection controllers). Washers equipped with recirculation tanks will have test screen provided for the tanks' valves and pumps. If washer is equipped with the conductivity control system a test screen will be provided for conductivity controllers.

Access to the service mode is restricted by the Service switch.
The switch must be in the ON position in order to access the Service Menu screen.

5.4.1 Test PLC Input Signals (Sensors)

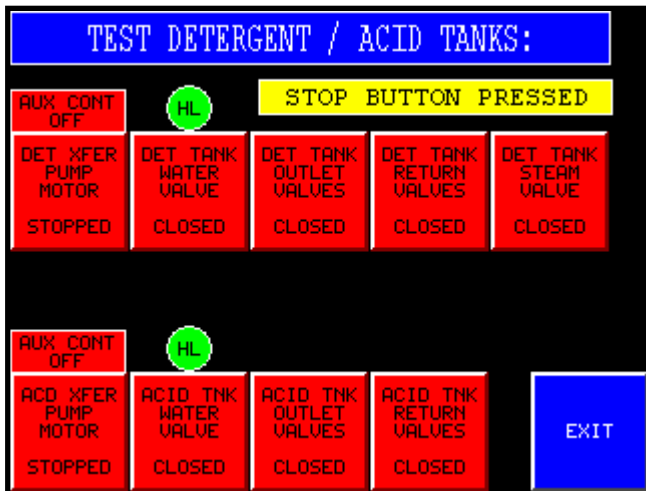


Both descriptive and graphical indication are used to better represent the status of the control device or the sensor.

Sample:



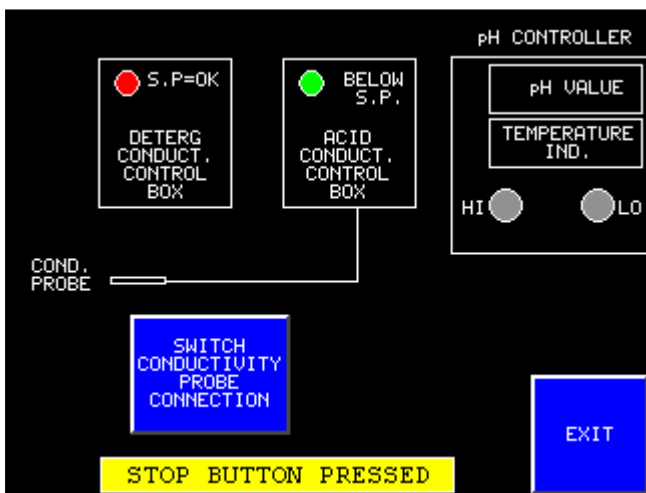
5.4.4 Wash Solution Re-circulation Tanks:



All devices on the wash solution re-circulation tanks can be tested from this screen (transfer pumps and valves, water supply valves and steam supply valve).

Note: some devices may not be shown, depending on the tank configuration used.

5.4.5 Test Conductivity & pH Control Signals: (Optional, if pH or conductivity system is installed)



This screen enables testing connection to the conductivity system and pH controller.

Use the button to switch the conductivity probe connection from detergent to acid controller and monitor the set-point feedback signal.

The pH controller sends the HI and LO pH signals to be used for neutralization process.

5.5 ALARM LIST



The alarm list holds the information about abnormal conditions that may have occurred during the washer's operation.

The following conditions are monitored:

- sump water level
- sump and booster HX temperature sensors, converters and reading in regard to the alarm set-points
- soiled and clean doors' position
- motor starters for wash pump and the dryer fan

The list can hold up to 50 records. The latest alarm event is always inserted to the top of the list. Up to 20 alarm events may be displayed on one screen.



Use the  or  buttons to scroll through the whole list.

Every alarm record has the date/time stamp, which is very useful in troubleshooting the system and tracking down the operational problems.

The red checkbox on the left side of each record indicates the acknowledgement status. All alarms must be acknowledged in order to re-start the washer's operation.

The 'ACKN ALL' button will acknowledge all active alarms. The 'CLEAR LIST' button will delete all the records from the list. The service switch must be in ON position to enable the 'CLEAR LIST' button.

Both the 'ACKN ALL' and the 'CLEAR LIST' button must be held pressed for about one second to activate their respective function.

Use the 'PREVIOUS SCREEN' button to return to either Operation screen or the Main Menu screen.

5.6 PASSWORD MANAGEMENT

In addition to the service key required to access the set-up and service menus, additional four levels of access codes (passwords) have been set up for the washer's settings that require restricted access.

The SUPERVISOR & FOREMAN access, FACTORY access, and SERVICE access codes are set-up with a different level of privilege.

All access codes except the factory access code can be modified through the PV600 screen, by the supervisor or the factory access codes.





Access to Password Management Screen:

1. Turn service key ON
2. Go to Service Screen
3. Touch Top-Left corner of the screen
4. Enter the Supervisor or Factory access code, the following screen will be displayed:



5. Select the operator whose access code needs to be changed by repeatedly touching the button.
6. Touch the 'NEW PASSWORD' button and enter new password for the selected operator.
7. Touch the 'VERIFY PASSWORD' button to re-enter (verify) password. If both 'new password' and 'verify password' numbers are the same there will be message showing 'Password changed'. If different numbers were entered the message will read 'New and verify passwords differ'. Start over by entering 'new password'.
8. Press 'EXIT' button to return to the Service menu.

Section 6 Inspection and Maintenance

 	WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.
 	WARNING: ELECTRIC SHOCK HAZARD - Lock building electrical supply switch to OFF before performing any service on unit.


Procedures described in this section should be performed at regular intervals as indicated. The interval frequency should be increased with increased usage of the equipment. Should a problem occur, refer to *Section 12: Troubleshooting*.

6.1 CLEANING PROCEDURES

6.1.1 Daily Maintenance

1. Debris Baskets and Screens:

- After the last cycle of the day, allow the machine to cool and roll any carts remaining in the machine out of the machine.
- Lift out sections of the floor grating sufficient to access the sump screens and baskets
- Lift the baskets and screens out of the sump using the handles provided.
- Clean the filters while they are still wet, before foreign matter dries.
- Wash the screens under a forceful stream of tap water to remove all soil and replace them in the chamber as they were.
- Replace all grating sections previously removed.

	WARNING: FALL HAZARD To prevent falls, keep floors dry. Promptly clean up any spills or drippage.
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6.1.2 Weekly Maintenance

1. Surface Cleaning:

- Any commercial stainless steel cleaner or polish may be used.
- Using a damp cloth or sponge, apply cleaner in a back-and-forth motion, in the same direction as the surface grain.
- Thoroughly wipe off cleaner.
- Polish surface with a clean, dry, lint-free cloth.



CAUTION: EQUIPMENT DAMAGE HAZARD

Use non-abrasive cleaners when cleaning the unit. Follow direction on containers and rub in back-and-forth motion (in same direction as surface grain). Abrasive cleaners will damage stainless steel. Cleaner rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use these cleaners on painted surfaces.

2. Rotary Spray Arms:

Rotation of spray header arm should be regularly inspected during machine operation. The spray arms should rotate at about 24 r.p.m. in a clockwise direction. Because the spray arms are moved by the pressure of the water flowing through them, they will not rotate as they should if the spray orifices are blocked. Should any spray arms be clogged or blocked follow these steps:

- Loosen the set screw and nut holding each spray arm in the hub. Withdraw arms from hub assembly.
- At a sink, shake out any debris within the spray arm.
- Insert a stream of water into the spray arm to flush out all orifices.
- Return the spray arm to the hub assembly. Position arm with orifices slightly off center (this is called the **vector angle**), then tighten set screw and nut.

Note: If after the above cleaning procedure, the header continues to rotate at less than 24 r.p.m., refer to the section entitled **Spray Arm Hub Assembly Removal**.

6.1.3 Monthly Maintenance

1. Spray Arm Hub Assembly Removal:




- Remove the hold down screw in the center of the hub by turning counterclockwise.
- Lift hub off its axle.
- Remove hub and insert a stream of water into the hub to flush out all orifices.
- Remove all foreign matter from hub and axle. Thoroughly clean the axle and interior surfaces of the hub. Remove all mineral deposits and soil.
- Reassemble. Slide hub over axle and tighten hold down screw.

2. Chamber Interior

Depending on the effect and hardness of the local water supply, it will be necessary to remove scale from inside surfaces of the tank. The scale can be removed with a commercial scale remover. A citric or phosphoric based descaler is recommended. Nitric based solutions may damage the interior of the chamber and pump seals.

- Open chamber door.
- Remove all carts from within the wash chamber..
- Pour the liquid descaler into the sump.
- Position the power switch to ON.
- Select the OFF position (Rinse Cycle) or turn off the detergent pumps.
- Press START.
- Upon completion of the cycle, press START again to run a second cycle in order to completely rinse system.
- At completion of second cycle, open door and allow unit to air dry.

Check bottom filters for debris. If debris is present, clean as in *Section 10.1.1*.


  	<p>WARNING: CHEMICAL BURN/EYE INJURY HAZARD</p> <ul style="list-style-type: none">• When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.• Always refer to the chemical's Material Safety Data Sheet. <p>Wear gloves and face protection</p>
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3. Detergent Pumps (if supplied)

- Verify the calibration of the detergent pumps (this is usually done by the company that supplies the chemicals).
- Check the pumps and tubing for leaks and worn parts. Generally, if the calibrations gradually decrease, it is a good indication that the pump needs to be repaired.

4. Door Operation

Check the operation of the door(s) to ensure smooth operation. The door(s) should not stick or be excessively heavy.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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5. Door Safety Switch


- initiate a cycle with door(s) open.
- Close door(s) and start a cycle. Wearing proper safety protection (i.e., gloves and a face protection), slowly open door to check operation of automatic stop.
- Verify that the **DOOR OPEN** display indicator light functions properly.


6.1.4 Six Month Maintenance


1. Self-Cleaning Screen:

The self-cleaning screen is flushed during each drain phase of the cycle. However, it may occasionally be necessary to remove the screen and to flush it free of foreign matter which can become imbedded in the screen.

- The self-cleaning screen is located in the main drain line, prior to the drain line valve.
- Remove the four (4) bolts and lock washers to release the cover plate.
- Withdraw the strainer and clean it.
- Inspect the gasket to ensure that it is in good condition and replace if necessary.
- Replace the strainer and cover plate against the gasket.
- Secure with hardware previously removed making sure to tighten the nuts evenly.
- Start the washer and check the cover for leaks.


	<p>WARNING: FALL HAZARD</p> <p>To prevent falls, keep floors dry. Promptly clean up any spills or drippage.</p>
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	<p>WARNING: ELECTRIC SHOCK AND/OR BURN HAZARD</p> <ul style="list-style-type: none">• Lock building electrical supply disconnect switch to OFF, close steam, water and air supply valves, and position power switch to OFF before performing any service on the unit. When the power switch is ON, door switch(s) and valves are energized, and if cycle is started hot water/steam would enter piping and washer. <p>Wear gloves and face protection</p>
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	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Doors, washer interior and washed wares may be hot.• Hot water/steam may be sprayed through door opening if door is opened too soon - press STOP button and wait until water flow stops before opening door. <p>Wear gloves and face protection.</p>
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2. Delrin™ Hub Replacement

Depending on the amount of use the unit is receiving, the Delrin™ rings in the spray arm hub assembly will need to be changed. The Delrin™ kit comes in three (3) pieces.

	<p>CAUTION: The Delrin™ rings should be changed before there is too much play in the hub. If they are not changed frequently enough, the hubs and spindles will wear prematurely causing damage and improper washing.</p>
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- Remove the hold down screw in the center of the hub by turning it counterclockwise.
- Lift the hub off its axle.
- Remove the ring from the axle and rinse the axle. Slide the new ring onto the axle.
- Remove the second piece from inside the hub and rinse the hub. Insert the new piece. This piece can be inserted into the hub or placed on the end of the axle.
- Remove the hold down screw Delrin™ washer and replace with new one.
- Slide the hub onto the axle, insert the hold down screw and tighten.

	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Allow unit to cool down before performing any service on pump, piping and valves. Motor, pump, valves and piping surfaces become very hot during unit operation <p>Wear gloves and face protection</p>
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3. Steam Line Strainers

This step is not required if the unit has electric sump heaters and electric heat exchanger.

- Close the building supply lines and allow the piping to cool.
- Locate the strainers on the sump and heat exchanger supply lines.
- Each strainer has a hex cap which can be removed to extract the mesh screen.
- Clean the screens and replace them in the strainers.
- Reassemble. Open the building supply lines and check for leaks.

4. Steam Trap Maintenance



- If improper operation suspected (e.g. when the water is not heating to the correct temperature) the trap may be disassembled for inspection, cleaning and repair.
- To clean or replace the disc (the only moving part), unscrew the cap and remove.
- When replacing the disc, ensure that the smooth side is facing up. **DO NOT** use rough abrasives on the disk's surface.

5. Air Inlet Filter

- The compressed air supply entering the machine pneumatic tubing passes through a filter assembly.
- Shut off air supply to machine inlet.
- Press in on the drain valve stem located on the bottom of the filter bowl to release moisture and trapped air.
- When the air in the system is completely expelled, remove the black plastic fill cap and inspect filter, replace as required.
- Replace the plastic cap and turn on the air supply to the machine.

Check the unit for leaks.

Section 7 Field Test Procedure

 	<p>WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD</p> <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.
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Every unit must be tested and inspected according to this procedure whenever a part is adjusted, repaired or replaced and when the unit is initially installed. Items which do not comply to test procedures must be corrected and retested.

Keep records of all readings, measurements, discrepancies, corrections, retests and reinspections. Each test must meet the standards of material and performance set forth in this procedure

7.1 PRELIMINARY CHECKS

1. Verify proper hook-up to required services, i.e., hot water, electric and, if steam-heated unit, steam.
Note: Water and steam supply lines should be one pipe size larger than the nominal washer pipe size.
2. Inspect chamber door for smooth operation. Check that door handle and door catch are securely fastened to door.
3. Inspect pipes, valves, fittings and fasteners for completeness of assembly.
4. Check control wiring and connections.
5. Open chamber door. Manually turn all rotary spray arms. Check that they rotate freely, without any friction or binding.
6. If washer is supplied with a Quicklock system check that the fit between the Quicklock cart flange and floor fitting is snug and that faces of these are parallel.

7.2 CYCLE TEST



WARNING: FALL HAZARD

To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

2. Turn POWER switch to the ON position.



CAUTION:

Always position header shelf or shoe box rack assembly over quicklock connection in bottom of chamber before operation unit. If header or accessory is not positioned correctly, damage may result and unit will not effectively wash load.

3. Open chamber door and insert Quicklock cart (if supplied with machine) or ensure Quicklock selector switch is in the OFF position. Close chamber door.
4. Press the START button. (Ensure that the machine door is closed and the **DOOR OPEN** indicator light is not illuminated).
5. Operate the machine for one or two complete cycles, verifying that they correspond to the user's program and as outlined in *Section 2: Principles of Operation*.
6. During the cycle, verify the door switch operation as outlined in *Section 10.1.3.6*.
7. During the cycle, stop the washer immediately after the sump has completed filling with fresh water and check the water level in the sump. Adjust the fill delay timer appropriately to compensate for different flow rates than those experienced during factory tests and set-up.
8. During the cycle, stop the washer immediately after the end of the gravity drain and before the flush drain commences. Check the level of water remaining in the sump and adjust the power drain timer and gravity drain timer appropriately to compensate for different drain back-pressures than those previously experienced.
9. If the unit is supplied with a blower, devapormatic or drying package, start the blower and check that the blower is rotating in the correct direction.

7.3 TEMPERATURE CALIBRATION

1. Verify the temperature of the sump with a known accurate temperature device and compare it with the reading on the temperature display.
2. If it is out of adjustment, refer to Temperature Offset Adjustment Section 5.3.1.7.

7.4 CYCLE COMPLETE CHECK












1. Verify that the **CYCLE COMPLETE** display and indicator light is illuminated.
2. Inspect all piping, valves, flanges and gaskets for leaks.
3. Press the **STOP** button and verify that the **STOP** indicator display and light is illuminated.
4. Press the **START** button and ensure that the unit will not operate with the **STOP** button pressed.




7.5 CLEANUP

1. Turn the **POWER** switch to the **OFF** position.
2. Close all of the utility supply lines.
3. Position building electrical supply disconnect switch (circuit breaker) in the **OFF** position.
4. Replace any access panels that were removed.
5. Inspect work area to be sure all materials used during testing have been removed.
6. Clean unit as describe in *Section 10.1.2.1*.

Section 8 Troubleshooting

Should the unit appear to be malfunctioning, the following chart will help indicate some probable causes and their solutions.

 	<p>WARNING: PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD</p> <ul style="list-style-type: none">• To avoid personal injury or equipment damage read and understand the manual.• Only qualified service personnel should make repairs and adjustments to this equipment. Maintenance done by unqualified personnel or installation of unauthorized parts could cause personal injury, or result in equipment damage.• Performance of scheduled preventive maintenance and minor repairs as described in this manual are required for safe and reliable operation of the equipment.
    	<p>WARNING: ELECTRIC SHOCK AND/OR BURN HAZARD</p> <ul style="list-style-type: none">• Lock building electrical supply disconnect switch to OFF, close steam, water and air supply valves, and position power switch to OFF before performing any service on the unit. When the power switch is ON, door switch(s) and valves are energized, and if cycle is started hot water/steam would enter piping and washer. <p>Wear gloves and face protection</p>
	<p>WARNING: FALL HAZARD</p> <p>To prevent falls, keep floors dry. Promptly clean up any spills or drippage.</p>
  	<p>WARNING: BURN HAZARD</p> <ul style="list-style-type: none">• Allow unit to cool down before performing any service on pump, piping and valves. Motor, pump, valves and piping surfaces become very hot during unit operation <p>Wear gloves and face protection</p>

  	<p>WARNING: CHEMICAL BURN/EYE INJURY HAZARD</p> <ul style="list-style-type: none">• When replacing chemical injection components or chemical containers residual detergent might remain in used parts or tubing. Severe injury may occur in contact with skin or eyes.• Always refer to the chemical's Material Safety Data Sheet. <p>Wear gloves and face protection</p>
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If you are unable to correct the problem with the use of the Troubleshooting Chart, or if a problem occurs that is not described on the chart, please call you local Scientek™ representative. *Never permit unqualified persons to work on the washer.*

Use the Troubleshooting Chart as follows:

- **STATUS** - Select a symptom from this column that most nearly corresponds with the position to which the washer cycle progressed before the trouble occurred.
- **TROUBLE** - Select the problem you think is most appropriate to the particular trouble symptom. The examples are presented in cycle sequence for ease of reference.
- **CAUSE/CORRECTION** - This column lists the specific conditions that should be checked to isolate and correct the one causing the malfunction. The conditions are presented in the order in which they should be checked.

TROUBLESHOOTING TABLE

	Status	Trouble	Cause/Correction
START - UP PROBLEMS	1) Before beginning cycle	◇ Control panel is not operating.	<ul style="list-style-type: none"> Building main power disconnect is not turned on - turn power on. POWER switch is not set to ON - turn power on.
		◇ Cycle does not start when START is pressed	<ul style="list-style-type: none"> Power switch not set to ON - turn power ON. If the sump was empty, the unit may be filling. If the unit is not filling, verify that the water supply is on. Doors may not be closed - close the doors. Faulty door microswitch mechanism or contact - repair or replace switch as necessary. Blown fuses in electrical box - replace fuses. One or more thermal overload protectors (in electrical box) tripped - reset. Wiring connections loose - check electrical system and make adjustments as necessary.
		◇ Cycle does not start when START is pressed	<ul style="list-style-type: none"> If the washer is equipped with a Panel view 600 Touch Pad diagnostics, check PLC inputs.
CYCLE PROBLEMS	2) During a cycle	◇ Control outputs not being sent to unit (i.e., valves not opening).	<ul style="list-style-type: none"> Blown controller fuse - verify and replace if necessary. Wiring connection to output is loose - check wiring connection. Using touch pad go to service diagnostics and check PLC outputs
		◇ Insufficient or no water entering chamber through rotary spray arms.	<ul style="list-style-type: none"> There is not enough water in the sump - verify the float level and adjust as required. Rotary spray arm nozzles clogged - clean nozzles. Bottom filters clogged - clean filters. Self-cleaning screen is clogged - clean screen. Drain valve is leaking - replace if necessary Pump rotating in wrong direction - check that pump is rotating correctly, as indicated by arrow. The Delrin™ bushings have worn out and are leaking - replace as required.
		◇ Insufficient or no water entering chamber through Quicklock cart spray arms.	<ul style="list-style-type: none"> There is not enough water in the sump - verify the float level and adjust as required. Quicklock cart is not positioned properly over the quicklock connection - reposition cart. Rotary spray arm nozzles clogged - clean nozzles. Bottom filters clogged - clean filters. Quicklock flange and fitting are not aligned - adjust this using the set screws on the quicklock connection. Self-cleaning screen is clogged - clean screen. Drain valve is leaking - replace if necessary Pump rotating in wrong direction - check that pump is rotating correctly, as indicated by arrow. The Delrin™ bushings have worn out and are leaking - replace as required. Quicklock control valve is not opening completely. Observe operation of Quicklock control valve.

	Status	Trouble	Cause/Correction
C Y C L E P R O B L E M S		◊ Water leaks from washer.	<ul style="list-style-type: none"> Chamber overflowing because chamber float switch is malfunctioning - check electrical connections to switch. Check operation of switch. Clean switch contacts or replace switch as necessary. Piping is leaking - check flanges and pump and tighten as necessary. Improper weld - visually inspect the exterior of the washer for leaks. Verify that the water overflow is not plugged.
		◊ Insufficient or no water entering the unit during the FILL step.	<ul style="list-style-type: none"> Supply valves not open - open building and washer supply valves. Fill solenoid not operating correctly - repair or replace as necessary. Check the voltage to the solenoid. If no voltage, check wiring and controller PLC output diagnostics with touch screen. Drain valve is leaking - check drain valve seals; replace if necessary. Chamber float switch is malfunctioning - check electrical connections to switch. Check operation of switch. Clean switch contacts or replace switch as necessary. Detergent is foaming and float switch is actuated prematurely - use only non-foaming detergents and check injection time.
		◊ Too much water entering chamber during filling. Water going to overflow drain.	<ul style="list-style-type: none"> Fill solenoid not operating correctly - repair or replace as necessary. Check the voltage to the solenoid. Foreign matter jammed in solenoid. Chamber float switch is malfunctioning - check electrical connections to switch. Check operation of switch. Clean switch contacts or replace switch as necessary.
		◊ Pump starts before appropriate chamber water level is reached.	<ul style="list-style-type: none"> Chamber float switch is malfunctioning - check electrical connections to switch. Check operation of switch. Clean switch contacts or replace switch as necessary. Detergent is foaming and float switch is actuated prematurely - use only non-foaming detergents and check injection time
		◊ Pump does not start during a step in the cycle.	<ul style="list-style-type: none"> Overload relay on pump starter tripped - reset overload relay. Output for pump not energizing - check voltage at output and check wiring. Check diagnostic outputs for PLC with touch screen.
		◊ Pump leaks	<ul style="list-style-type: none"> Flanges may be loose - check and tighten. Worn pump shaft seal - replace if necessary. Worn pump-cover O-ring - replace if necessary.
		◊ Cycle stops for no apparent reason.	<ul style="list-style-type: none"> Chamber door has opened - close door and restart unit. Faulty door switch - repair or replace if necessary. Blown fuses - check fuses and replace if necessary. Check diagnostic outputs for PLC with touch screen.
		◊ Temperature of incoming water is too low and heat exchanger option is not installed.	<ul style="list-style-type: none"> Building supply water temperature is low - increase temperature of water supply. Building supply water pressure too high. Regulate or throttle control valve GPM to 25 (or as specified).

	Status	Trouble	Cause/Correction
CYCLE PROBLEMS		◇ Temperature of incoming water is too low and heat exchanger option is installed.	<ul style="list-style-type: none"> • If steam-heated unit, faulty steam solenoid supply valve - repair or replace as necessary. • If steam-heated unit, steam supply valve not fully open - open steam supply valve. • If steam-heated unit, steam strainer and/or trap dirty - clean. • If electrically heated unit, heating element burned out - replace • If electrically heated unit, starter overload relay tripped - reset overload relay. • If electrically heated unit, fuse blown - check fuses and replace if necessary. • Thermostat or Graham not set properly - check and adjust.
	3) During the WASH step of the cycle.	◇ Chemical not being injected into the chamber.	<ul style="list-style-type: none"> • Detergent supply empty - verify detergent supply. • Detergent pickup tube not positioned properly in container - check that tube is placed fully into container. • Detergent pump not operating properly - repair or replace if required. • Chemical lines from containers to the machine are clogged - flush the lines with hot water to remove any chemical buildup or replace the lines if necessary. • Output is not energized - verify that the output to the chemical pumps is active and check wiring. • Check diagnostic PLC outputs with touch screen.
WASH SECTION PROBLEMS		◇ The machine "hangs up" in the middle of the cycle and temperature guarantee is active during the wash step.	<ul style="list-style-type: none"> • Temperature Set Point too high - verify the Set Point and adjust. • Washer temperature is out of calibration - recalibrate temperature. • Temperature alarm setting is too high - verify and adjust. • If steam-heated unit, faulty sump coil steam solenoid supply valve - repair or replace as necessary. • If steam-heated unit, steam supply valve not fully open - open steam supply valve. • If steam-heated unit, sump coil steam strainer and/or trap dirty - clean. • If electrically heated unit, sump heating element burned out - replace • If electrically heated unit, sump heater starter overload relay tripped - reset overload relay. • If electrically heated unit, fuse blown - check fuses and replace if necessary. • Incoming hot water not hot enough - verify building supply water temperature and adjust if necessary. Verify that the thermostat on the hot water booster is adjusted correctly..

	Status	Trouble	Cause/Correction
FINAL RINSE	4) During the final rinse.	◇ The machine "hangs up" in the middle of the cycle and temperature guarantee is active during the final rinse step.	<ul style="list-style-type: none"> • Temperature Set Point too high - verify the Set Point and adjust. • Washer temperature is out of calibration - recalibrate temperature. • Temperature alarm setting is too high - verify and adjust. • If steam-heated unit, faulty sump coil steam solenoid supply valve - repair or replace as necessary. • If steam-heated unit, steam supply valve not fully open - open steam supply valve. • If steam-heated unit, sump coil steam strainer and/or trap dirty - clean. • If electrically heated unit, sump heating element burned out - replace • If electrically heated unit, sump heater starter overload relay tripped - reset overload relay. • If electrically heated unit, fuse blown - check fuses and replace if necessary. • Incoming hot water not hot enough - verify building supply water temperature and adjust if necessary. Verify that the thermostat on the hot water booster is adjusted correctly. • Exhaust vent is open and heat escaping from chamber - verify operation of the exhaust vent and ensure it is closed while washing.

	Status	Trouble	Cause/Correction
EXHAUST	5) During the exhaust step.	◇ Vapor not removed from chamber.	<ul style="list-style-type: none"> • Vent damper not opening - check that vent is opening and repair or replace as necessary • Exhaust timer not set for enough duration - increase the time on the display. • Blower (if equipped) is not functioning - verify that blower output is energizing and check wiring. • Building supply exhaust not sufficient - check building supply exhaust and correct if necessary.
CYCLE END PROBLEMS	7) At the end of the cycle.	◇ Chamber does not drain completely .	<ul style="list-style-type: none"> • Power switch is still on - turn power off • Drain/Retain final rinse switch (if available) is set to RETAIN - turn switch to DRAIN and turn power off. • Defective drain valve - check that valve is not sticking and repair or replace as necessary. • Drain valve is not energized - check output to drain valve and check wiring. • Drain line plugged - clear drain line. • Check PLC output with diagnostics through touch screen.
		◇ Chamber is covered in a white powder.	<ul style="list-style-type: none"> • Unit is not draining properly - check drain line valve operation. • Drain valve is not energized - check output to drain valve and check wiring. • Drain line plugged - clear drain line • Detergent concentration is out of calibration - calibrate detergent pump.
		◇ Load comes out dirty.	<ul style="list-style-type: none"> • Detergent supply empty - replenish detergent supply. • Incorrect detergent being used - contact your chemical supplier. • Unit is not draining properly - check drain line valve operation. • Drain valve is not energized - check output to drain valve and check wiring. • Drain line plugged - clear drain line. • Rotating sprayer arms are not turning at the correct speed - adjust the arms for the correct rotation and vector angle. • Rotating sprayer arms are clogged - clean the spray arms.

Appendix A FACEPLATES & SERIAL PLATE

Appendix B PROGRAM INPUT/OUTPUT ADDRESSES

Appendix C PANEL ARRANGEMENT AND PLC WIRING CONNECTION DIAGRAM

CONTROL PANEL LAYOUT & WIRING DIAGRAMS

WASHER MODEL: SW6000 Series

DRAWING LIST:

No.	Drawing No.	Description	Remarks
1	6000-TITLE	TITLE PAGE	
2	6000-SYS	SYSTEM CONFIGURATION	
3	6000-PNL	PANEL LAYOUT: FRONT & BACK PLATE VIEW	
4	6000-MP	HIGH VOLTAGE POWER DISTRIBUTION	
5	6000-CP	CONTROL POWER DISTRIBUTION: 120VAC / 24VDC	
6	6000-DI-0	PLC INPUT CARD DI-0 (16Point, 24VDC SINK)	
7	6000-AI-3	PLC INPUT CARD AI-3 (6CH, T/C INPUT)	
8	6000-DI-4	PLC INPUT CARD DI-4 (16 Point, 24VDC SINK)	optional
9	6000-DO-0	PLC OUTPUT CARD DO-0 (12Point, 24VDC)	
10	6000-DO-1	PLC OUTPUT CARD DO-1 (16Point, 24VDC)	
11	6000-DO-2	PLC OUTPUT CARD DO-2 (8Point, 120VAC, RELAY)	
12			
13			
14			
15			

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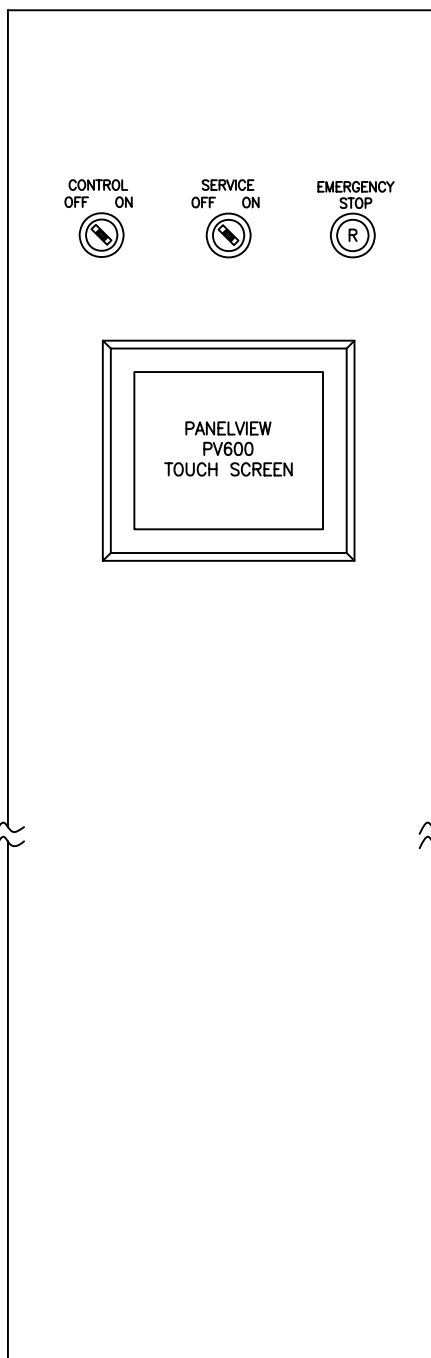
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WASHER CONTROL SYSTEM
SW 6000 Series

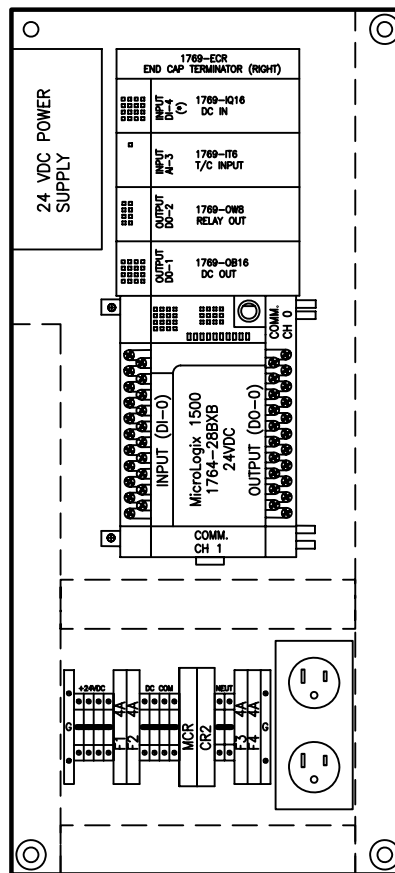
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DWG No.

6000-TITLE



< FRONT VIEW >



< BACK PLATE VIEW >

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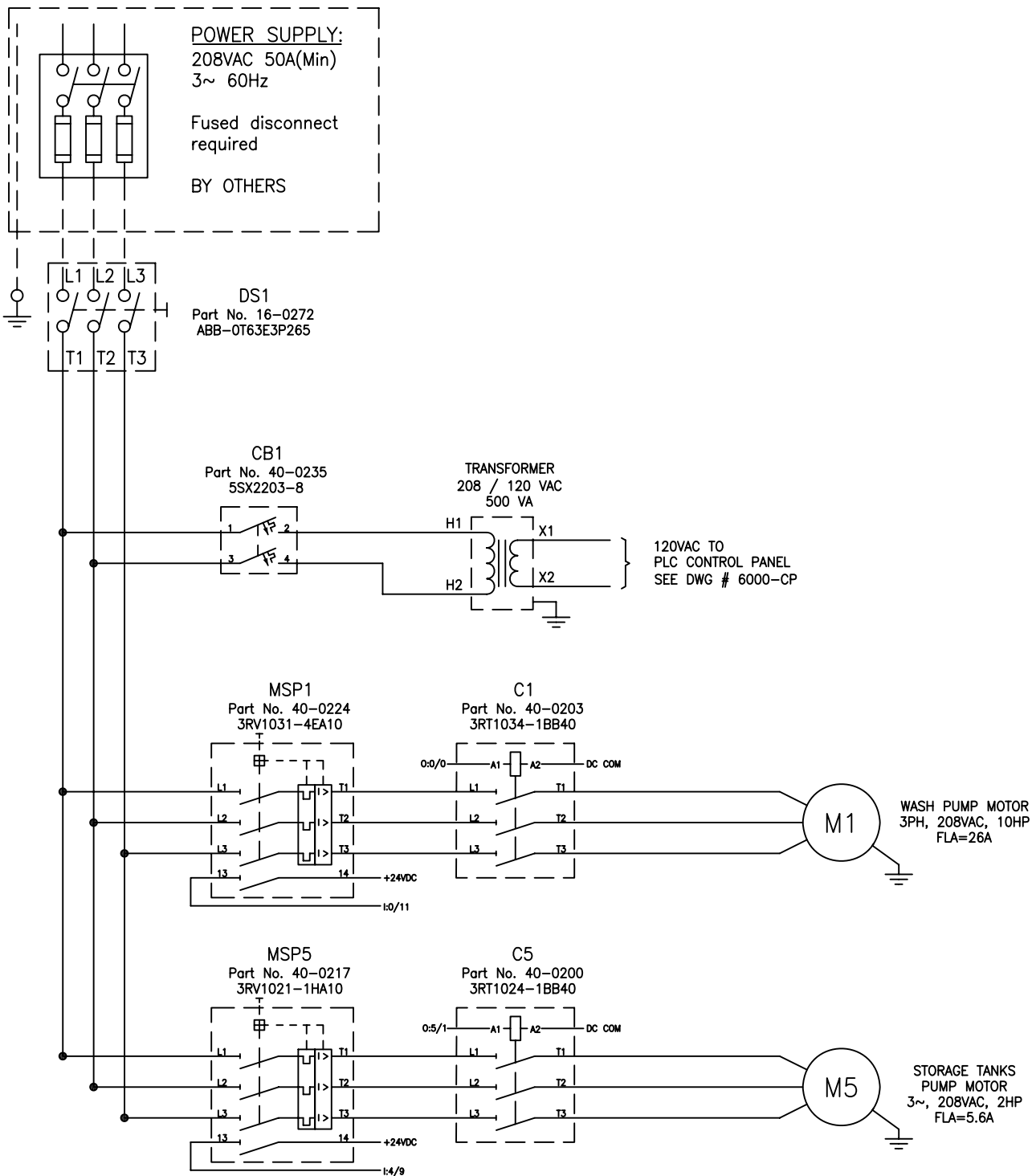
11151 Bridgeport Road
Richmond, BC, V6X 1T3, Canada
Phone: 604-273-9094 Fax: 604-273-1262

REV	DATE	NAME
E		
D		
C		
B		
A	Oct 14, 2005	D. Pekic

WASHER CONTROL SYSTEM
SW 6000 Series

PANEL LAYOUT

DWG No. 6000-PNL



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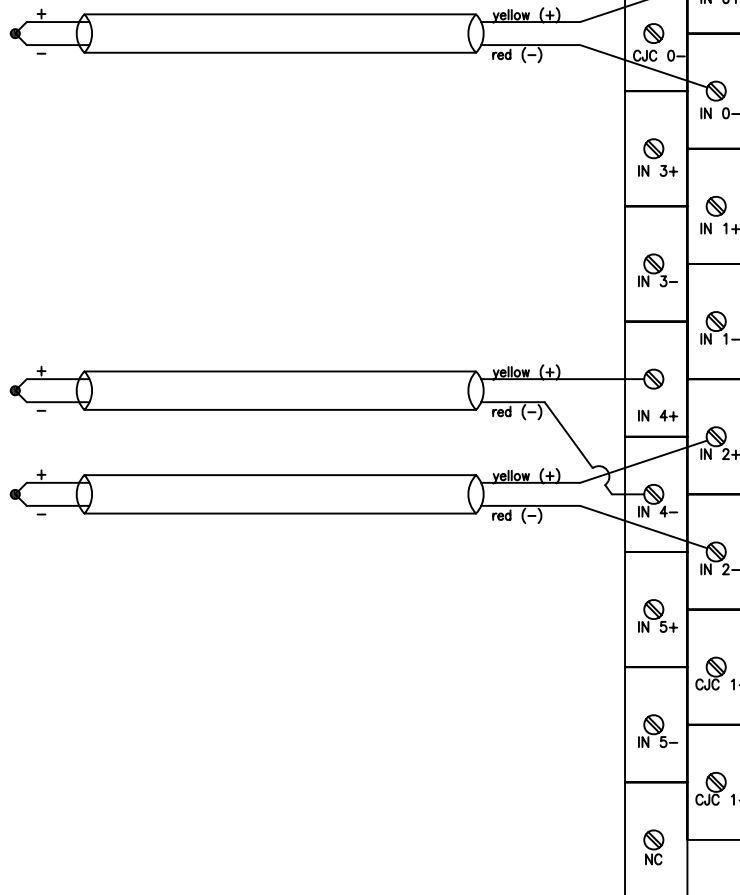
REV	DATE	NAME
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B	July 31, 2007	D. Pekic
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WASHER CONTROL SYSTEM
SW 6300 Series

MAIN POWER 3~ 208V

DWG No. 6000-MP

TC-1
SUMP TEMPERATURE



TC-5
DETERGENT TANK
TEMPERATURE

TC-3
BOOSTER TEMPERATURE

(LEGEND)

— — — OPTION: USE IF REQUIRED

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D		
C		
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WASHER CONTROL SYSTEM
SW 6000 Series

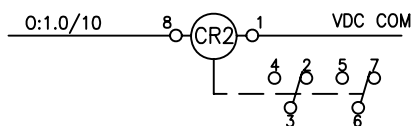
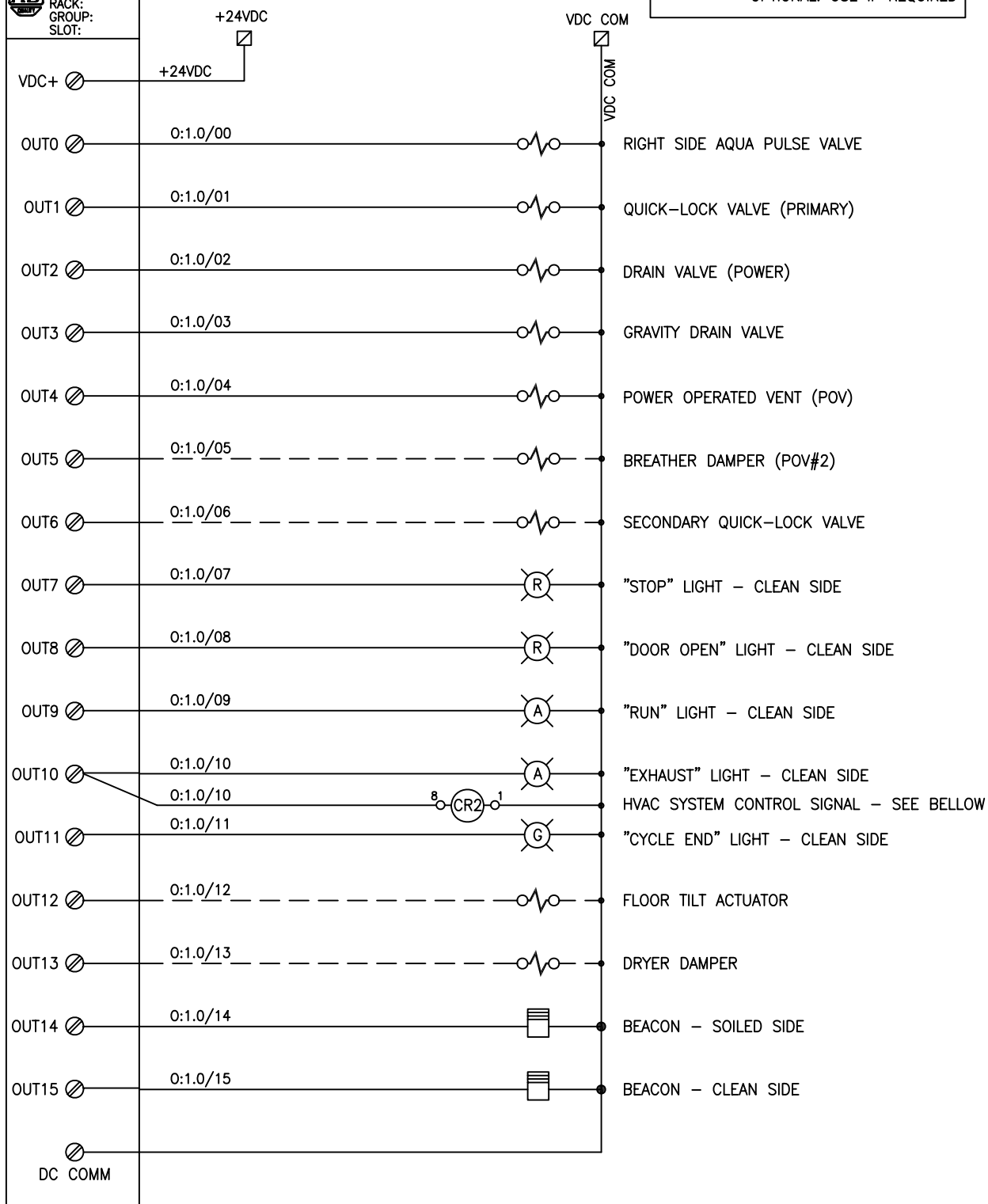
PLC INPUT CARD AI-3

DWG No. 6000-AI-3

1769-OB16
RACK:
GROUP:
SLOT:

(LEGEND)

— — — OPTIONAL: USE IF REQUIRED



OUTPUT: 1769-OB16

HVAC SYSTEM CONTROL SIGNAL
(Max 240VAC, 5Amp)

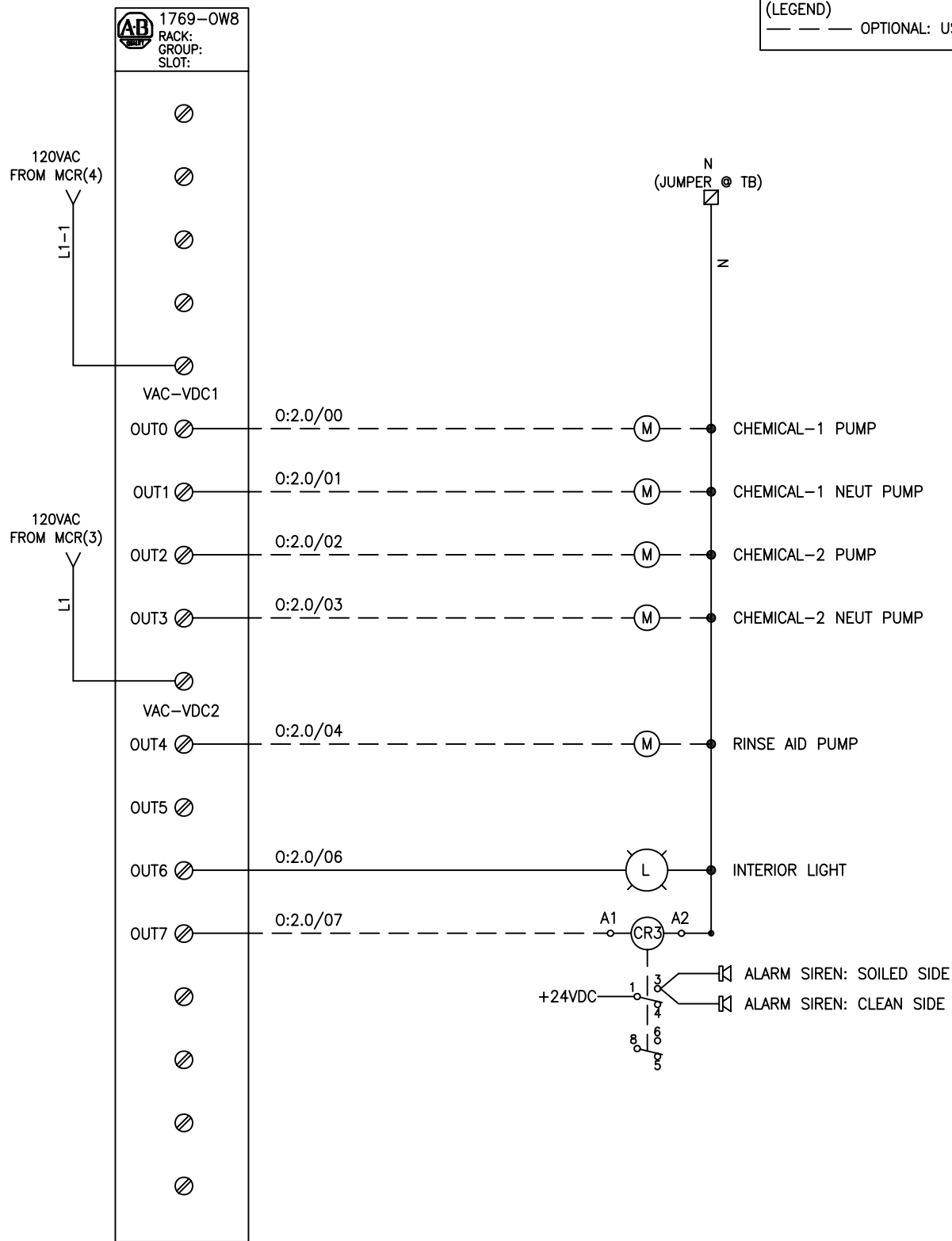
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REV	DATE	NAME
E		
D		
C		
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WASHER CONTROL SYSTEM
SW 6000 Series
PLC OUTPUT CARD DO-1

DWG No. 6000-DO-1



OUTPUT: 1769-OW8

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E		
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C		
B		
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WASHER CONTROL SYSTEM
SW 6000 Series

PLC OUTPUT CARD DO-2

DWG No. 6000-DO-2

Appendix D PROGRAM CYCLE CHARTS 1-10 AND COMMON SETTINGS

COMMON TIME SETTINGS (sec)

FILL SEQUENCE	Fill Delay	10
----------------------	------------	----

DRAIN SEQUENCE	Drain Delay	0
	Power Drain	10
	Gravity Drain	20
	Flush Drain	8

EXHAUST	Extra Exhaust	120
	Emergency Exhaust	120

TEMPERATURE GUARANTEE HOLD TIME (sec):	
PREWASH	600
WASH-1	600
WASH-2	600
RINSE-1	600
RINSE-2	600
RINSE-3	600
RINSE-4	600

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Revision:	Date:	Name:
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WASHER CONTROL SYSTEM

SW 6000 Series, Cart & Utensil Washer
PROGRAM CHARTS

JOB #: Standard

COMMON TIME SETTINGS (sec)

FILL SEQUENCE	Fill Delay	
----------------------	------------	--

DRAIN SEQUENCE	Drain Delay	
	Power Drain	
	Gravity Drain	
	Flush Drain	

EXHAUST	Extra Exhaust	
	Emergency Exhaust	

TEMPERATURE GUARANTEE HOLD TIME (sec):	
PREWASH	
WASH-1	
WASH-2	
RINSE-1	
RINSE-2	
RINSE-3	
RINSE-4	

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Technology Corporation

Revision:

Date:

Name:

WASHER CONTROL SYSTEM

SW 6000 Series, Cart & Utensil Washer
PROGRAM CHARTS

A

Oct 01, 2007

D. Pekic

JOB #: Standard

Appendix E SMC VALVE CONFIGURATION

Appendix F PIPING AND INSTRUMENTATION DIAGRAM

Appendix G PARTS LIST

Appendix H FINAL RELEASE SHOP DRAWING

Appendix I Warranty

